

TF2021

Tropical Forestry 2021

PROGRAMME BOOK WITH ABSTRACTS

TF2021

Virtual Conference
December 14 - 15, 2021
Kota Kinabalu, Sabah



Transformasi Ke Arah
UNIVERSITI 4.0
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UMS KAMPUS RAHMAH
TERAS KECEMERLANGAN DAN KEUNGGULAN



<https://tf-2021.ums.edu.my>



conference.fpt@ums.edu.my



SECRETARIAT TROPICAL
FORESTRY 2021
Faculty of Tropical Forestry
Universiti Malaysia Sabah
Jalan UMS, 88400,
Kota Kinabalu, Sabah

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CONFERENCE PROGRAMME

This conference applies Malaysia Standard Time (MYT)

TIME (MYT)	DAY 1 - 14 th DECEMBER 2021 (TUESDAY)
0830-0930	OPENING SESSION (Virtual Room 1A) National and State Anthem Doa Recital Welcoming Address: Dean Faculty of Tropical Forestry Officiating Speech and Launching of the Conference: Vice Chancellor UMS
0930-1000	Keynote Speaker: Tan Sri Dr. Salleh Mohd Nor (Former FRIM, Malaysia) <i>Paper title: "Challenges in Forestry Tertiary Education in the 21st Century"</i>
1000-1030	Invited Speaker 1: Prof. Dr. Koichiro Kuraji (<i>The University of Tokyo Forests, Japan</i>) <i>Paper title: "Ecosystem Services with Special Reference on Water Resource"</i>
1030-1100	Invited Speaker 2: Assoc. Prof. Dr. Feng-Cheng Chang, (<i>National Taiwan University, Taiwan</i>) <i>Paper title: "Development of Bamboo Fiber Reinforced Composite Materials"</i>
1100-1200	Concurrent Session 1 URBAN FORESTRY : Virtual Room 1A FOREST HYDROLOGY : Virtual Room 1B FOREST SOIL AND SILVICULTURE : Virtual Room 1C Q&A
1200-1400	Lunch Break
1400-1600	Concurrent Session 2 FOREST ECOLOGY AND CONSERVATION (I) : Virtual Room 2A FOREST POLICY, ECONOMICS AND FOREST MANAGEMENT: Virtual Room 2B BIODIVERSITY AND GENETIC CONSERVATION : Virtual Room 2C Q&A
1600	End of Day 1
TIME (MYT)	DAY 2 - 15 th DECEMBER 2021 (WEDNESDAY)
0900-0930	Invited Speaker 3: Dr. Ahmad Zuhaidi Yahya, A.M.N. (<i>Roxburghii Forestry Consultant, Malaysia</i>) <i>Paper title: "Crown Diameter Prediction Models of Selected Forest Plantation Species in Malaysia"</i>
0930-1000	Invited Speaker 4: Datuk Frederick Kugan (<i>Sabah Forestry Department, Malaysia</i>) <i>Paper title: "Tropical Forestry in Sabah The Way Forward"</i>
1000-1200	Concurrent Session 3 FOREST ECOLOGY AND CONSERVATION (II) : Virtual Room 3A SOCIAL FORESTRY AND AGROFORESTRY : Virtual Room 3B FOREST REMOTE SENSING AND GIS/ PRECISION FORESTRY : Virtual Room 3C Q&A
1200-1400	Lunch Break
1400-1600	Concurrent Session 4 NATURE TOURISM AND RECREATION : Virtual Room 4A FOREST PRODUCTS AND ENGINEERING : Virtual Room 4B PLANTATION FORESTRY : Virtual Room 4C Q&A
1600-1700	CONFERENCE RESOLUTIONS AND CLOSING SESSION (Virtual Room A)
1700	End of Conference

PROGRAMME DETAILS

This conference applies Malaysia Standard Time (MYT)

DAY 1: 14th DECEMBER 2021 (TUESDAY)

0800	Entry of Invited Guest and Participants Virtual Room 1A
	Opening Session
0830	National and State Anthem: Lagu Negaraku and Sabah Tanah Airku Reciting Doa
0850	Welcoming Address by Associate Professor Dr. Normah Awang Besar@Raffie, the Dean Faculty of Tropical Forestry.
0900	Officiating Speech and Launching of the Conference by Professor Datuk ChM. Ts. Dr. Taufiq Yap Yun Hin, the Vice Chancellor of Universiti Malaysia Sabah.

PLENARY 1

Virtual Room 1A

Chairperson: Prof. Gs. Dr. Phua Mui How

9:30 am to 11:00 am

KEYNOTE ADDRESS: CHALLENGES IN FORESTRY TERTIARY EDUCATION IN THE 21ST CENTURY

0930	<i>Tan Sri Dr. Salleh Mohd Nor</i> Former First Director-General of Forest Research Institute Malaysia, Malaysia
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INVITED SPEAKER 1: ECOSYSTEM SERVICES WITH SPECIAL REFERENCE ON WATER RESOURCE

1000	<i>Prof. Dr. Koichiro Kuraji</i> Head of Executive Office, The University of Tokyo Forests, Japan
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INVITED SPEAKER 2: DEVELOPMENT OF BAMBOO FIBER REINFORCED COMPOSITE MATERIALS

1030	<i>Assoc. Prof. Dr. Feng-Cheng Chang</i> School of Forestry & Resource Conservation, National Taiwan University, Taiwan
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CONCURRENT SESSIONS

(Please refer the details in page 14)

Session 1

Day 1	URBAN FORESTRY	FOREST HYDROLOGY	FOREST SOIL AND SILVICULTURE
	Chairperson: Assoc. Prof. Dr. Andy Russel Mojiol	Chairperson: Dr. Anand Nainar	Chairperson: Dr. Mandy Maid
1100 - 1200	Virtual Room 1A	Virtual Room 1B	Virtual Room 1C

Q&A

Lunch Break

Session 2

Day 1	FOREST ECOLOGY AND CONSERVATION (I)	FOREST POLICY, ECONOMICS AND MANAGEMENT	BIODIVERSITY AND GENETIC CONSERVATION
	Chairperson: Dr. Mandy Maid	Chairperson: Dr. Walter Lintangah	Chairperson: Dr. Maria Lourdes T. Lardizabal
1400 - 1600	Virtual Room 2A	Virtual Room 2B	Virtual Room 2C

End of Day 1

PROGRAMME DETAILS

This conference applies Malaysia Standard Time (MYT)

DAY 2: 15th DECEMBER 2021 (TUESDAY)

0830 Entry of Invited Guest and Participants

PLENARY 2

Virtual Room 1A

Chairperson: Assoc. Prof. Ts. Dr. Liew Kang Chiang

9:00 am to 10:00 am

0900 **INVITED SPEAKER 3: CROWN DIAMETER PREDICTION MODELS OF SELECTED FOREST PLANTATION SPECIES IN MALAYSIA**

Dr. Ahmad Zubaidi Yahya, A.M.N.

Roxburghii Forestry Consultant, Malaysia

0930 **INVITED SPEAKER 4: TROPICAL FORESTRY IN SABAH THE WAY FORWARD**

Datuk Frederick Kugan

Chief Conservator of Forests, Sabah Forestry Department, Malaysia

CONCURRENT SESSIONS (Please refer the details in page 18)

Session 3

Day 2	FOREST ECOLOGY AND CONSERVATION (II)	SOCIAL FORESTRY AND AGROFORESTRY	FOREST REMOTE SENSING AND GIS/ PRECISION FORESTRY
	Chairperson: Assoc. Prof. Dr. Colin Maycock	Chairperson: Dr. Jephthe Sompud	Chairperson: Dr. Kamlisa Uni Kamlun
1000 - 1200	Virtual Room 3A	Virtual Room 3B	Virtual Room 3C

Q&A
Lunch Break

Session 4

Day 2	NATURE TOURISM AND RECREATION	FOREST PRODUCTS AND ENGINEERING	PLANTATION FORESTRY
	Chairperson: Dr. Rosmalina Abdul Rashid	Chairperson: Dr. Ismawati Palle	Chairperson: Dr. Affendy Hassan
1400 - 1600	Virtual Room 4A	Virtual Room 4B	Virtual Room 4C

Conference Resolutions and Closing Session
Virtual Room 1A

End of Conference

CONCURRENT SESSION DETAILS

This conference applies Malaysia Standard Time (MYT)

DAY 1: 14th DECEMBER 2021 (TUESDAY)

SESSION 1 – URBAN FORESTRY

Chairperson: Assoc. Prof. Dr. Andy Russel Mojiol

Time : 1100 - 1200

Virtual Room : 1A

- PAPER 1
1100 **THE BENEFIT OF URBAN GREEN AREA IN KOTA KINABALU, SABAH** TF-003
- **Andy Russel Mojiol, Lim Wing Shen, Kaede Chan Lip Chung and Jesleen Linus** (1)
1110 **Dani**
- PAPER 2
1110 **SPECIES FAILURE AND DEFECT PROFILE FOR SELECTED STREET** TF-027
- **TREES OF KUALA LUMPUR** (1)
1120 **Sreetheran Maruthaveeran and Asmidah Sisam**
- PAPER 3
1120 **GREEN INFRASTRUCTURE CONCEPTUAL FRAMEWORK FOR KUALA** TF-007
- **LUMPUR** (2)
1130 **Owen Yeo Thian Seng, Mohd Johari Mohd Yusof, Sreetheran Maruthaveeran, Helmi Z. M. Shafri and Kei Saito**

Q&A

SESSION 1 – FOREST HYDROLOGY

Chairperson: Dr. Anand Nainar

Time : 1100 - 1200

Virtual Room : 1B

- PAPER 1
1100 **DIFFERENCES IN STREAM RESPONSIVENESS BETWEEN A TROPICAL**
- **MONTANE CLOUD FOREST (TMCF) AND A TROPICAL LOWLAND**
1110 **RAINFOREST (TLRF)** TF-045
- **Anand Nainar, Koichiro Kuraji, Fera Cleophas, Vanilie Terrence Justine,** (1)
1110 **Nasrulkhakim Maidin, Kamlisa Uni Kamlun, Rozaidi Hassan, Kawi Bidin, Maznah Mahali**
- PAPER 2
1110 **TOTAL SUSPENDED SOLID (TSS) DETERMINATION FROM THE FIRST**
- **YEAR OF FOREST HARVESTING IN PENINSULAR MALAYSIA** TF-021
1120 **Siti Aisah Shamsuddin, Mohd Azahari Faidi, Shahzerul Hisam Kamarudzaman,** (1)
- **Hafizi Mohd Jaffar and Siti Khatijah Othman,**
- PAPER 3
1120 **RAINFALL EROSIVITY AND SOIL EROSION IN PENAMPANG (GUNUNG**
- **ALAB AND INOBONG SUBSTATION), SABAH** TF-006
1130 **Atika Bakar, Maznah Mahali, Kamlisa Uni Kamlun, Hamjah Rusli, Anand** (2)
- **Nainar, Koichiro Kuraji, Vanilie Terrence Justine, Nasrulkhakim Maidin and Kawi Bidin**
- PAPER 4
1130 **CANOPY PRECIPITATION INTERCEPTION IN A LOWLAND TROPICAL** TF-023
- **FOREST IN RELATION TO STAND STRUCTURE** (1)
1140 **Fera Cleophas, Maznah Mahali, Baba Musta, Nur Zaida Zahari and Kawi Bidin**

Q&A

SESSION 1 - FOREST SOIL AND SILVICULTURE

Chairperson: Dr. Mandy Maid

Time : 1100 - 1200

Virtual Room : 1C

PAPER 1

- 1100 **THE EARLY GROWTH PERFORMANCE OF OCTOMELES**
- **SUMATRANA IN A SPACING AND FERTILISER TRIAL AT SEGALIUD** TF-015
1110 **LOKAN FOREST RESERVE SANDAKAN SABAH** (2)
Ade Esah Azzahra Jobin, Julius Kodoh, Jephthe Sompud, Paul Liau, Darrysie Salapan, Soliano Alfanso and **Mandy Maid**

PAPER 2

- 1110 **POTENTIAL OF NIR FOR FOLIAR NUTRIENTS ASSESSMENT IN** TF-009
- **FORESTRY** (1)
1120 **Agustan Alwi**, Roger Meder, Yani Japarudin and Hazandy Abdul Hamid

PAPER 3

- 1120 **ESTIMATING SOIL ORGANIC CARBON AT TAKASAGO UNIMAS**
- **EDUCATIONAL FOREST FOR FOREST REHABILITATION** TF-013
1130 **Mohd Effendi Wasli**, Nathaniel Noel Celestine Laujang, Meekiong Kalu, Hafsa Nahrawi, Zinnirah Shabdin, Hashimah Elias, Mohd Akmal Mohd Raffi and Mogeret Sidi (1)

PAPER 4

- 1130 **ESTIMATION OF CARBON POOL AT MANGROVE FOREST, KUDAT,** TF-034
- **SABAH, MALAYSIA** (1)
1140 **Syahrir M.H**, Nurul Syakilah Suhaili, Ejria Saleh and **Normah Awang Besar**

Q&A

SESSION 2 - FOREST ECOLOGY AND CONSERVATION (I)

Chairperson: Dr. Mandy Maid

Time : 1400 - 1600

Virtual Room : 2A

PAPER 1

- 1400 **AN ASSESSMENT OF *Shorea leprosula* AND *Dryobalanops lanceolata***
- **(DIPTEROCARPACEAE) SEED TREES AND CANDIDATE TREES** TF-008
1410 **DURING A DROUGHT YEAR IN SABAH, MALAYSIA** (1)
Mandy Maid, Nur Nadira Atira Abdullah Salleh, Julius Kodoh, Jephthe Sompud, Paul Liau, Darrysie Salapan

PAPER 2

- 1410 **IN-SITU CONSERVATION OF MANGROVE SPECIES IN BAGAN** TF-015
- **DATUK, PERAK** (1)
1420 **Nurcahaya Khairany Mohamad Azmi**, Farah Shahanim Mohamed Mohidin and Zahirah Mohamad Tahir

PAPER 3

- 1420 **IN VITRO PROPAGATION OF *Castanea sativa* Mill.** TF-010
- **Siti Aishah Zakeri**, Hashimah Elias, Nur Kusaira Khairul Ikram, Khairunnisa (2)
1430 **Othman**

PAPER 4

- 1430 **DIURNAL CHANGES IN LEAF WATER POTENTIAL OF *Cinnamomun*** TF-035
- ***iners* Reinw. Ex Blume AT DIFFERENT BRANCH AND CANOPY LEVEL** (1)
1440 **Rhema Debully Maripa**, Norahisma Nadirah Rahiman, Farrah Sahanim Binti Paduka, Nurul Fatimah Binti Abd Naser and Maznah Mahali

1440	<u>PAPER 5</u>	
-	DIVERSITY AND ABUNDANCE OF RIPARIAN PLANT SPECIES AT	
1450	LATA KEDING, JELI, KELANTAN	TF-024
	Nazahatul Anis Amaludin, Nor Nadia Mohd Zulkafli, Siti Azieza Ahmad	(1)
	Zu, Nur Anis Zarifa Zamri, Nur Aina Ab Majid, Shaparas Daliman, Amal	
	Najihah Muhamad Nor, Radhiah Zakaria	
1450	<u>PAPER 6</u>	
-	RAPID ASSESSMENT OF INSECTS IN SUNGAI TIAGAU FOREST	TF-018
1500	RESERVE, KALABAKAN, SABAH, MALAYSIA	(1)
	Razy Japir, Momin Binti, John Lee Yukang and Arthur Y.C. Chung	
1500	<u>PAPER 7</u>	
-	POTENTIAL OF <i>Aglaia odoratissima</i> (MELIACEAE) AS BOTANICAL	
1510	INSECTICIDES AGAINST <i>Callosobruchus maculatus</i> (FABRICIUS)	TF-021
	Maznah Muning, Radhiah Rajimin, Norhelina Latiff, Zahora I., Adam	(2)
	Harris G., Dzolkhifli Omar, Mohd Aspollah Sukari, Mohd Hamami Sahri,	
	Ahmad Said Sajap	

Q&A

SESSION 2 – FOREST POLICY, ECONOMICS, AND MANAGEMENT
Chairperson: Dr. Walter Lintangah
Time : 1400 - 1600
Virtual Room : 2B

1400	<u>PAPER 1</u>	
-	SUSTAINABLE FOREST MANAGEMENT (SFM) CONTRIBUTION TO	
1410	FOOD SECURITY: A STAKEHOLDERS' PERSPECTIVES IN SABAH, MALAYSIA	TF-030
	Walter Lintangah, Vilaretti Atin, Amirah Liyana Ibrahim, Beatrice Johnlee	(1)
	Kulik, Hardawati Yahya, Ricky Alisky Martin, Gordon John	
1410	<u>PAPER 2</u>	
-	MODELING HEIGHT-DIAMETER RELATIONSHIP OF EIGHTEEN	
1420	TREE SPECIES PLANTED ON RECLAIMED AGRICULTURAL LANDS	TF-016
	WITH RANDOM SPECIES EFFECTS	(1)
	Tzeng Yih Lam	
1420	<u>PAPER 3</u>	
-	ASSESSING INTRASPECIFIC WOOD DENSITY VARIATIONS OF	
1430	<i>Szygium</i> sp. IN TROPICAL FOREST OF SOUTHWEST SABAH	TF-012
	Jacqueline Joseph, Rhema Debully Maripa and Phua Mui How	(2)
1430	<u>PAPER 4</u>	
-	FOOD SECURITY AND SUSTAINABLE FOREST MANAGEMENT (SFM)	
1440	IMPLEMENTATION AT THE FOREST MANAGEMENT UNIT (FMU)	TF-008
	LEVEL: A CASE STUDY IN SALAROM TAKA, NABAWAN, SABAH	(2)
	Vilaretti Atin and Walter James Lintangah	
1440	<u>PAPER 5</u>	
-	VISITOR'S WILLINGNESS TO PAY ON BIODIVERSITY	
1450	CONSERVATION USING THE CONTINGENT VALUATION METHOD:	TF-002
	A CASE OF KUALA LUMPUR FOREST ECO PARK, MALAYSIA	(1)
	Fazilah Musa and Intan Nursuhada Mohd Shahrudin	

Q&A

SESSION 2 - BIODIVERSITY AND GENETIC CONSERVATION

Chairperson: Dr. Maria Lourdes T. Lardizabal

Time : 1400 - 1600

Virtual Room : 2C

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|-------------------|---|---------------|
| 1400
-
1410 | <u>PAPER 1</u>
DIVERSITY OF CANOPY ARTHROPODS ON TREES PLANTED AT RESTORATION FOREST, LUASONG SABAH
Maria Lourdes T. Lardizabal and Jane Vanessa Sandra Abin | TF-054
(1) |
| 1410
-
1420 | <u>PAPER 2</u>
GENETIC RESCUE AND CONSERVATION MANAGEMENT FOR SABAH'S RARE AND ENDEMIC DIPTEROCARP: A CASE STUDY ON FRAGMENTED POPULATIONS OF <i>Dipterocarpus ochraceus</i>
Richard J. Majapun, Berhaman Ahmad and Vijay Kumar | TF-017
(2) |
| 1420
-
1430 | <u>PAPER 3</u>
BIODIVERSITY ASSESSMENT IN A FOREST IN AN OIL PALM PLANTATION LAHAD DATU, SABAH
Dzulhelmi Muhammad Nasir, Mohd Yazid Hassan and Ahmad Afandi Murdi | TF-001
(1) |
| 1430
-
1440 | <u>PAPER 4</u>
PREVALENCE AND RISK OF PARASITES TO FRESHWATER FISH: A DOUBLE-EDGED SWORD BETWEEN BIODIVERSITY AND EPIDEMIOLOGICAL STUDIES
Hairul Hafiz Mahsol, Marina Hassan and Abdul Hamid Ahmad | TF-039
(1) |
| 1440
-
1450 | <u>PAPER 5</u>
BORNEAN PYGMY ELEPHANT HABITAT USAGE OF NATURAL SALT LICKS IN SEGALIUD LOKAN FOREST RESERVE
Jephte Sompud, Baba Musta, Mohd Sani Sarjadi, Julius Kodoh, Mandy Maid, Collin Goh, Marylyn Jonalius and Adams Anathasius Zati | TF-043
(1) |
| 1450
-
1500 | <u>PAPER 6</u>
RESEARCH NOTES ON BATS' SPECIES ASSEMBLAGE IN MADAI CAVE OF SEGAMA VALLEY, SABAH, MALAYSIA
Azniza Mahyudin, Vijay Kumar Subbiah, Sue Suzaine Sukiman, and Mohamad Zahirul Hoque | TF-004
(1) |
| 1500
-
1510 | <u>PAPER 7</u>
MONITORING OF MIGRATORY BIRDS AT PULAU ULAR AND WETLAND ECOSYSTEM IN LABUAN FEDERAL TERRITORY
Anna Wong, Nur Syamimi Makbul, Noralip Hasanudin and Mohd Aswad | TF-056
(1) |

Q&A

DAY 2: 15th DECEMBER 2021 (WEDNESDAY)

SESSION 3 - FOREST ECOLOGY AND CONSERVATION (II)

Chairperson: Assoc. Prof. Dr. Colin Maycock

Time : 1000 - 1200

Virtual Room : 3A

- | | | |
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| 1000 | <u>PAPER 1</u> | |
| - | A PRELIMINARY LIST OF THE POTENTIALLY INVASIVE PLANTS OF | TF-042 |
| 1010 | SABAH | (1) |
| | Colin R. Maycock and Sandy Tsen | |
| |
<u>PAPER 2</u> | |
| 1010 | THE REMAINING BLACK JEWELS ECOSYSTEM IN SOUTHERN | TF-040 |
| - | PENINSULAR MALAYSIA: FLORISTIC COMPOSITION OF PEAT | (1) |
| 1020 | SWAMP FOREST IN MUAR, JOHOR | |
| | Hyrul Izwan Mohd Husin, Ismail Parlan, Siti Aisah Shamsuddin and Tariq Mubarak Husin | |
| |
<u>PAPER 3</u> | |
| 1020 | REHABILITATION OF DEGRADED FOREST AREA USING | TF-031 |
| - | DIPTEROCARP AND NON-DIPTEROCARP SPECIES IN MERLIMAU | (1) |
| 1030 | FOREST RESERVE, MELAKA | |
| | Farah Shahanim Mohamed Mohidin, Nurcahaya Khairany Mohamad Azmi and Zahirah Mohamad Tahir | |
| |
<u>PAPER 4</u> | |
| 1030 | THE EFFECT OF ANTHROPOGENIC DISTURBANCES ON TREE | TF-022 |
| - | GENERIC DIVERSITY AND COMMUNITY COMPOSITION IN A | (1) |
| 1040 | TROPICAL MONTANE FOREST OF ULU PADAS, SABAH | |
| | Keiko Ioki, Daniel James, Phua Mui How and Nobuo Imai | |
| |
<u>PAPER 5</u> | |
| 1040 | CHECKLIST AND DISTRIBUTION OF ALIEN PLANTS IN KINABALU | TF-019 |
| - | PARK, SABAH, MALAYSIA | (1) |
| 1050 | Vanielie Terrence Justine, Handry Mujih, Jamil Kasmin, Alovial Alphonsus, Rimi Repin, Nasrullahakim Maidin, Liew Thor Seng and Monica Suleiman | |
| |
<u>PAPER 6</u> | |
| 1050 | EX-POST ANALYSIS OF A COMMUNITY-BASED PEATLAND FOREST | TF-037 |
| - | RESTORATION IN PENINSULAR MALAYSIA | (1) |
| 1100 | Tapan Kumar Nath | |

Q&A

SESSION 3 - SOCIAL FORESTRY AND AGROFORESTRY

Chairperson: Dr. Jephthe Sompud

Time : 1000 - 1200

Virtual Room : 3B

- | | | |
|------|---|--------|
| 1000 | <u>PAPER 1</u> | |
| - | LINKING COMMUNITY LIVELIHOOD IN SOCIAL FORESTRY WITH | TF-025 |
| 1010 | FOOD SECURITY: DISCLOSE THE GAPS AND ADAPTING STRATEGIES | (1) |
| | Hardawati Yahya, Hasniar Mohd Amir, Walter James Lintangah, Diana Demiyah Mohd Hamdan, Fazlini Mohd Fadzwi and Gordon John Thomas | |

1010	<u>PAPER 2</u>		
-	THE POTENTIAL OF TIMBER-AGROFORESTRY TO MEET	TF-028	
1020	SARAWAK'S FORESTRY DEMAND	(1)	
	Abraham Ngu and Nur Hazwani Abdul Bahar		
	<u>PAPER 3</u>		
1020	SELECTION OF AGROFORESTRY TREE BASE ON PARTICIPATORY	TF-002	
-	AND ECOLOGICAL APPROACH IN CENTRAL KALIMANTAN,	(2)	
1030	INDONESIA		
	Eldy Indra Purnawan, Renhart Jemi, Hiskia Kasim, Lira Asaria Uthan, Jhanson Regalino and Arief Hamidi		
	<u>PAPER 4</u>		
1030	STUDIES ON GERMINATION, EARLY SEEDLING GROWTH AND	TF-009	
-	DEVELOPMENT OF <i>Castanea sativa</i>	(2)	
1040	Mohamad Tajul Arifin Mohd Rafiee, Hashimah Elias, Mohd. Effendi Wasli, Mogeret Sidi, Meekiong Kalu and Hafsah Nahrawi		
	<u>PAPER 5</u>		
1040	DIVERSITY AND COMPOSITION OF PLANT SPECIES IN A	TF-017	
-	COMMUNAL AGROFORESTRY SYSTEM AT MANGGATAL, SABAH	(1)	
1050	Mandy Maid, Teckonia Mudi, Adele Ding, Jenne Lajuni and Julius Kodoh		
	<u>PAPER 6</u>		
1050	RATTAN INDUSTRY: AN ECONOMIC STUDY TO SET-UP RAW	TF-006	
-	MATERIALS PROCESSING, FIBER SUSTAINABILITY, AND	(1)	
1100	ENHANCEMENT FURNITURE PRODUCTS DEVELOPMENT		
	Mohamad Saiful Sulaiman, Razak Wahab, Rashidah Kamarulzaman, Nasihah Mokhtar, and Sofiyah Mohd Razali		
	<u>PAPER 7</u>		
1100	SUSTAINABLE FOREST MANAGEMENT IN PROTECTED FOREST	TF-044	
-	AREA OF CENTRAL INDIA : SIGNIFICANCE OF TRIBAL WOMEN	(1)	
1110	PARTICIPATION		
	Garima Tiwari		
	<u>PAPER 8</u>		
1110	COMPARISON OF DIRECT VISUAL DISTINCTION AND 15N TRACER	TF-057	
-	TECHNIQUES OF PLANT ROOT IN FIELD INTERCROPPING	(1)	
1120	Affendy Hassan, Dorte Bodin Dresbøll and Kristian Thorup-Kristensen		

Q&A

SESSION 3 - FOREST REMOTE SENSING AND GIS/ PRECISION FORESTRY
Chairperson: Dr. Kamlisa Uni Kamlun
Time : 1000 - 1200
Virtual Room : 3C

	<u>PAPER 1</u>		
1000	MAPPING THE IMPACT OF EARTHQUAKE ON THE CHANGES OF	TF-012	
-	LAND COVER IN MELANGKAP, KOTA BELUD, SABAH USING	(1)	
1010	LANDSAT 8 AND SENTINEL-2 IMAGES		
	Kamlisa Uni Kamlun, Diana P. Duma, Wan Arash Mudhiesh Wan Azman, Charmila Flora Miuse, Wilson Wong, Maznah Mahali and Mui-How Phua		

1010	<u>PAPER 2</u>	
-	VERTICAL ACCURACY COMPARISON OF MULTI-SOURCE DIGITAL ELEVATION MODEL (DEM) WITH AIRBORNE LASER SCANNING (ALS) DATA	TF-013
1020	Chai Lee Ting and Phua Mui How	(2)
1020	<u>PAPER 3</u>	
-	AN INTEGRATED FRAMEWORK FOR ASSESSING LAND-USE/LAND-COVER OF KELANTAN, MALAYSIA: SUPERVISED AND UNSUPERVISED CLASSIFICATIONS	TF-005
1030	Lee Bak Yeo, Wan Saiful Nizam Wan Mohamad, Ramly Hasan, Nurul Izzati Othmani, Nor Hamizah Abdul Hamid and Noorliyana Ramlee	(1)
1030	<u>PAPER 4</u>	
-	UTILIZING LANDSAT 8 OLI FOR LAND COVER CLASSIFICATION IN PLANTATION AREA	TF-016
1040	Syazwani Nisa Anuar and Wilson V. C. Wong	(2)

Q&A

SESSION 4 - NATURE TOURISM AND RECREATION
Chairperson: Dr. Rosmalina Abdul Rashid
Time : 1400 - 1600
Virtual Room : 4A

1400	<u>PAPER 1</u>	
-	ASSESSING THE TOURISM POTENTIAL OF KOTA MARUDU, SABAH	TF-010
1410	Rosmalina Abdul Rashid, Hamimah Talib, Jennifer Chan Kim Lian and Halimatus Mat Rani	(1)
1410	<u>PAPER 2</u>	
-	PUBLIC HIKING SATISFACTION AND THE REASON FOR PARTICIPATING HIKING ACTIVITY, SABAH	TF-018
1420	Jesleen Linus Dani and Andy Russel Mojiol	(2)
1420	<u>PAPER 3</u>	
-	AGROTOURISM: A REVIEW ON THE DEVELOPMENT AND ITS CONTRIBUTION IN MALAYSIA	TF-019
1430	Orryel Jaunis, Russel @ Andy Immit Mojiol and Julius Kodoh	(2)
1430	<u>PAPER 4</u>	
-	SUSTAINABILITY ASSESSMENT OF MANGROVE FOREST AS A TOURIST DESTINATION: A CASE STUDY USING GSTC CRITERIA IN KOTA BELUD, SABAH	TF-029
1440	Hamimah Talib, Nurul Hudaa Nadzri, Rosmalina Abdul Rashid, Kamlisa Uni Kamlun and Jennifer Chan Kim Lian	(1)
1440	<u>PAPER 5</u>	
-	LOCAL COMMUNITY PARTICIPATION IN ECOTOURISM DEVELOPMENT: A CASE STUDY IN BUKIT HAMPUAN FR, RANAU, SABAH	TF-041
1450	Elne Betrece Johnlee, Jarry K. Lajanga, Hasniar Amir, Jeddy Jerpyan Jakiwa, Nurul Shabariah Abu Bakar, Fazidah Ismail, Jaffirin Lapongan	(1)
1450	<u>PAPER 6</u>	
-	SUITABILITY FOR SALT-LICK TOURISM: A PRELIMINARY ASSESSMENT ON THE NATURAL SALT-LICKS AT SEGALIUD-LOKAN FOREST RESERVE, SANDAKAN, SABAH	TF-001
1500	Lim Wing Shen, Andy Russel Mojiol, Yip Pui Mun, Collin Goh, Paul Liao, Liaw Yi Chuang and Sanchez Vincent John	(2)

1500	<u>PAPER 7</u>	
-	IMPACTS OF MASS CAMPING ACTIVITY ON SOIL AND	TF-052
1510	VEGETATIONS IN KAWANG FOREST RESERVE	(1)
	Wilter Azwal Malandi and Rozaidi Hassan	

Q&A

SESSION 4 - FOREST PRODUCTS AND ENGINEERING

Chairperson: Dr. Ismawati Palle

Time : 1400 - 1600

Virtual Room : 4B

1400	<u>PAPER 1</u>	
-	EFFECT OF SANDING TREATMENT ON <i>Acacia mangium</i> PLYWOOD	TF-058
1410	PANEL PROPERTIES	(1)
	Ismawati Palle and Wong Li Zen	

1410	<u>PAPER 2</u>	
-	CONVERTING OF THE LIGNOCELLULOSIC WASTES MATERIALS	TF-047
1420	INTO OTHER VALUE-ADDED APPLICATIONS: REVIEW	(1)
	Nasihah Mokhtar, Sofiyah Mohd Razali, Mohamad Saiful Sulaiman, Taharah Edin and Razak Wahab	

1420	<u>PAPER 3</u>	
-	COMPARATIVE IN PHYSICAL AND STRENGTH PROPERTIES	TF-011
1430	BETWEEN NATURAL AND OIL HEAT TREATED 10 AND 15-YEAR-OLD <i>Tectona grandis</i>	(1)
	Razak Wahab, Rashidah Kamarulzaman, Mohamad Saiful Sulaiman, Sofiyah Mohd Razali, Taharah Edin, Nasihah Mokhtar and Muhammad Haziq Razak	

1430	<u>PAPER 4</u>	
-	RELATIONSHIP BETWEEN HARDNESS AND DENSITY PROFILE OF	TF-004
1440	GLUE-LAMINATED TIMBER MANUFACTURED FROM	(2)
	VISCOELASTIC-THERMAL COMPRESSION (VTC) MODIFIED FAST-GROWING TREE SPECIES	
	Charles Michael Albert and Liew Kang Chiang	

1440	<u>PAPER 5</u>	
-	MORPHOLOGICAL AND BENDING PROPERTIES OF LAB-SCALED	TF-005
1450	PROTOTYPE CROSS-LAMINATED TIMBER MANUFACTURED WITH	(2)
	DENSIFIED LAYERED COMPOSITE FROM FAST-GROWING TREE	
	Tan Yu Feng and Liew Kang Chiang	

1450	<u>PAPER 6</u>	
-	DISCOLORATION AND REDUCTION OF <i>Bambusa vulgaris</i> STRENGTH	TF-055
1500	AFTER WEATHERING PROCESS	(1)
	Rafidah Md Salim, Yuhana Suliman, Liew Kang Chiang, Zaidon Ashaari, Razak Wahab and Roziela Hanim Alamjuri	

1500	<u>PAPER 7</u>	
-	DENSITY PROFILE OF LAB-SCALED PROTOTYPE 3-LAYERED	TF-003
1510	TIMBERS MANUFACTURED WITH ALKALINE-TREATED AND	(2)
	DENSIFIED LAYERED COMPOSITE FROM <i>Paraserianthes falcataria</i>	
	Vinodini Raman and Liew Kang Chiang	

1510	<u>PAPER 8</u>	
-	SEMI-PERMANENT CHITOSAN COATING FOR WOOD	TF-038
1520		(1)
	Amena Anak Andok and Melissa Sharmah Gilbert Jesuet	

Q&A

SESSION 4 - PLANTATION FORESTRY

Chairperson: Dr. Affendy Hassan

Time : 1400 - 1600

Virtual Room : 4C

PAPER 1

- 1400 **TREE IMPROVEMENT PROGRAMS FOR THE 3 MAIN TAXA IN** TF-050
- **BORNEO MALAYSIAN** (1)
1410 **Mahadir Lapammu**, Yani Japarudin, Paul M. Warburton, David I. Boden,
Michael J. Wingfield, Roger A. Meder, and Jeremy T. Brawner

PAPER 2

- 1410 **EFFECT OF NPK AND SILICON FERTILIZER ON GROWTH AND** TF-020
- **DEVELOPMENT OF *Turnera ulmifolia*** (1)
1420 **Mogeret Sidi**, Dzolkhifli Omar, Hashimah Elias, Hafsa Nahrawi and Mohd
Effendi Wasli

PAPER 3

- 1420 **BORNEO FORESTRY COOPERATIVE: REALISING THE POTENTIAL** TF-014
- **FOR COLLABORATIVE RESEARCH IN TREE PLANTATION** (1)
1430 **FORESTRY IN BORNEO**
Paul Warburton

PAPER 4

- 1430 **PROSPECT FOR PROFITABLE TREE PLANTATION IN MALAYSIAN** TF-051
- **BORNEO: THE IMPORTANT OF RESEARCH AND DEVELOPMENT** (1)
1440 **Yani Japarudin**, Mahadir Lapammu, Paul M. Warburton and Roger A.
Meder

PAPER 5

- 1440 **HOW DROUGHT TOLERANT ARE TROPICAL WOODY CROP SPECIES** TF-053
- **– TURGOR LOSS POINTS FOR THE FIVE MOST COMMON SPECIES** (1)
1450 **IN THE EMERGING LANDSCAPES IN SOUTHEAST ASIA**
Norbert Kunert and Johannes Brändle

Q&A

PAPER 3 [TF-010 (2)]

***In vitro* Propagation of *Castanea sativa* Mill**

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Abstract. *Castanea sativa* Mill. (European chestnut) has been recognized as a multipurpose plant, mainly for food, health benefits, timber production etc. Nowadays, it is becoming a staple food in southern Europe, Turkey, southwestern and eastern Asia which made propagation and conservation crucial for sustainability of the plant. Hence, this study was performed to establish the efficient sterilization protocols besides investigate the effects of plant growth regulators and additives either applied singly or in combination on in vitro propagation of *Castanea sativa* Mill. In vitro propagation is an alternative tool to obtain a good quality mass production rapidly for availability of yields and products throughout the years. In the present study, seeds of *Castanea sativa* were initially subjected to disinfectant agents for surface sterilization before grown on MS basal. The aseptic seedlings were then excised, cultured in various treatments and eventually maintained in the culture room. Observations recorded including the germination rate (%), Mean number of shoots, roots and leaves produced, Shoot, root and leaves production (%), Shoots, roots and leaves length (cm).

Keywords: European chestnut; micropropagation; seed germination; plant growth regulators; additives.

PAPER 4 [TF-035 (1)]

Diurnal changes in leaf water potential of *Cinnamomun iners* Reinw. ex Blume at different branch and canopy level

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Abstract. This study was conducted to understand the fundamental concept of water distribution within a mature street tree. The objectives of the study were i). to determine diurnal changes of leaf water potential (Ψ_L) of the selected trees, ii). to compare the differences of Ψ_L between different canopy and branch levels, and iii). to relate leaf traits to water status of the selected trees. A total of 12 Kayu Manis trees along Jalan Borneo, Universiti Malaysia Sabah campus were chosen, ranging from 13.9 to 35.1 cm DBH and 4.3 to 9.93 m height. Their daily Ψ_L were measured from 6:00 am to 6:00 pm, with the interval of 2-hour period. The lowest Ψ_L were observed during midday between 12:00 noon and 2:00 pm with -2.8 MPa, while the highest reading was on 6:00 pm with -0.05 MPa. There was a significant interaction between Ψ_L of different branch levels with time ($p = 0.0005$) but not on canopy. The mean relative water content (RWC) was between $95.71 \pm 0.21\%$ to $96.03 \pm 0.20\%$ with no significant difference between canopy and branch parts. The mean leaf area index (LAI) ranged between 31.49 ± 0.74 to 33.64 ± 0.84 while the leaf thickness and leaf succulence ranged between $0.467 \pm 5.6 \times 10^{-3}$ cm to $0.475 \pm 5.9 \times 10^{-3}$ cm and $0.0260 \pm 3 \times 10^{-3}$ g m⁻² and $0.0268 \pm 3 \times 10^{-3}$ g m⁻² respectively.

Keywords: Diurnal changes; street trees; *Cinnamomun iners*; leaf water potential; leaf traits.